REMARKS

This amendment is being made pursuant to the Office Action mailed November 28, 2007. Claims 1, 2, 5-15, 18-24 and 27-29 remain pending in the application.

Interview Summary

The undersigned wishes to express his appreciation for the courtesy of the telephonic interview concerning the present application on February 21, 2008. One of the cited references was discussed but no agreement was reached regarding the allowability of any claims.

Rejection under 35 U.S.C.§ 102(b)

Claims 1, 2, 5, 6, 9 and 11 remain rejected as being anticipated by Terasaka (U.S. 5,770,305). Again, this rejection is respectfully yet strenuously traversed.

Initially, it will be noted that minor amendments have been made to independent claim 1 (and similar amendments made to claims 14 and 22) to more positively set forth that it is the "stress induced phase change property" of the SMA particles that provides the compression-after-impact strength to the adhesive compound, adhesive film or adhesive paste being claimed.

It is most respectfully asserted that the Examiner is ignoring an important point about the Teresaka et al. reference, that being that the functionality of the resin in Teresaka et al. would be destroyed if the SMA particles were presented in their austenitic phase during manufacture of the resin in Teresaka et al. Teresaka et al. requires the particles 44 to be in their martensitic state to enable them to be "crushed"

or deformed initially in the fabrication process, for the particles to perform their needed function. For the Teresaka et al. resin to function as it is desired to (i.e., to expand in response to a thermal change in the resin), the particles need to be able to return to a spherical shape via the "shape memory effect" (temperature-induced martensite to austenite phase transformation). Put differently, when the resin in which the particles are encapsulated expands due to a change in humidity and/or temperature, which causes the connection terminals to be pushed upwardly in the drawing of Figure 4, the particles need to be able to "decompress". By having the particles compressed into their martensitic state, this allows the particles 44 to expand in the thickness direction of the ACF, thus maintaining electrical conductivity between the connection terminals (col. 3, lines 5-19). Thus, if the particles were in their austenitic phase while suspended in the resin, this would provide no benefit to the resin in Teresaka et al., and furthermore would actually render the resin inoperable for its intended purpose. This is fundamentally different from the construction of the presently claimed adhesive compound, adhesive film and adhesive paste. Nothing in Teresaka et al. discloses or even suggests using the stress induced phase change property of the SMA particles, together with the particles in their austenitic state, to enable the SMA particles to function to actually absorb impacts and thus enhance the compression-after-impact strength of the adhesive compound, adhesive film or adhesive paste being claimed.

The Examiner has cited various paragraphs in Teresaka et al., principally in column 2, lines 65-67 and column 3, lines 1-10, to support an assertion that "stress induced" deformation is taught by Teresaka et al. However, this text merely underscores the fundamental difference between the presently claimed subject matter

and that of Teresaka et al.: that the SMA particles are initially crushed by thermocompression, and therefore would not be able to provide any impact resistance to the resin in which they are suspended. This text further states that the SMA particles "remain in a compressed state due to stress acting thereon from the outside, and only revert to their initial state due to a stress acting thereon from the outside" (that stress being a temperature related stress acting on the resin). The Examiner appears to find that since this text in Teresaka et al. mentions that the SMA particles can be crushed (i.e., physically forced to undergo an austenite to martensite phase transformation), that Teresaka et al. is basically functioning in the same way as the compounds and adhesives set forth in the independent claims of the present application. But this could not be further from the truth. The Teresaka et al. resin could not function to provide any appreciable compression-after-impact strength because of how the SMA particles are held in their compressed states. There is further not even the slightest suggestion in Teresaka et al. of using the stress induced phase change property of SMA particles for the purpose of enhancing compression-after-impact strength to the resin in Teresaka et al.

For at least the above set forth reasons, the undersigned continues to maintain that Teresaka et al. does not make use of a <u>stress induced</u> phase change of the SMA particles to enhance a compression-after-impact strength of the underlying film or compound. In view of the amendments to independent claims 1, 14 and 22, and the foregoing remarks, it is respectfully requested that the rejection in view of Teresaka et al. be withdrawn.

Rejection Under 35 U.S.C. §103(a)

Claims 1, 2, 5-15, 18-24 and 27-29 were rejected as being obvious over Terasaka et al. in view of herkules and Yliopisto. For essentially the reasons explained above, and also the amendments made herein to independent claims 1, 14 and 22, this rejection is also respectfully traversed. While herkules and Yliopisto may discuss the various properties of shape memory alloys, neither provides any suggestion or motivation to combine their teachings with the system of Terasaka et al. to produce the claimed subject matter. In fact, using SMA particles in their austenitic phase would destroy the functionality and utility of the resin in Terasaka et al. This is because the particles in Terasaka et al. need to be able to expand in response to temperature increase (i.e. the "shape memory effect" which is only possible if the SMA particle starts in its martensitic phase).

The fundamentally important point which the undersigned wishes to emphasize is that there is no suggestion from the herkules or Yliopisto references, nor from the Terasaka et al. reference, to use SMA particles <u>in their austenitic phase</u> to improve the compression-after-impact strength of the resin in Terasaka. Terasaka et al. simply is not concerned whatsoever with improving compression-after-impact strength, and in fact to use the use SMA particles in their austenitic phase in the resin of Terasaka et al. would basically destroy the ability of the resin to function for its intended purpose. Accordingly, it is respectfully requested that the obviousness rejection based on Terasaka et al./herkules/Yliopisto be withdrawn.

Claims 1, 2, 5-15, 18-24 and 27-29 were rejected as being obvious over Yamakawa et al. (WO/03/102071; hereinafter "Yamakawa et al."). This rejection is also

respectfully traversed. Yamakawa et al. is directed to a semiconductor that is manufactured in part with the use of a thermoconductive curable liquid polymer composition 5. The composition 5 is stated to function as a protective layer for the semiconductor element and as an adhesive agent for heat dissipation fins 6. The polymer 5 is stated to include a filler "B" made from a thermally elongatable shape memory alloy and a thermoconductive filler "C". The principal feature and function of the polymer is that it forms a good thermoconductive, curable liquid polymer with good flowability before curing, and good electrical conductivity after curing. Beyond a brief statement that the polymer 5 functions as a protective coating (which virtually any polymer coating would), there is no mention or suggestion that the polymer is able to provide any appreciable compression-after-impact strength, nor is being used for this purpose. Rather, it appears that just like with Teresaka et al., the SMA material in Yamakawa et al. is being used strictly to respond to temperature changes that the resin experiences and, in response to such temperature changes, to change shape to help maintain electrical conductivity between components that are covered by the resin. Thus, this reference, like Teresaka et al., appears to only make use of the <u>thermal phase change</u> property of the SMA particles. For at least this reason, reconsideration and withdrawal of this obviousness rejection is also respectfully requested.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: February 28, 2008

By: ____________________
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